Published in final edited form as:
Clin Pediatr Emerg Med. 2013 March ; 14(1): 35–40. doi:10.1016/j.cpem.2013.01.005.

Self-Reported Recent Life Stressors and Risk of Suicide in Pediatric Emergency Department Patients

Ian H. Stanley, BA [Postbaccalaureate IRTA Fellow],
Office of the Clinical Director National Institute of Mental Health, NIH stanleyih@mail.nih.gov W: 301-451-2114

Deborah Snyder, MSW [Clinical Social Worker],
Office of the Clinical Director National Institute of Mental Health, NIH DeborahSnyder@mail.nih.gov W: 301-594-7379

Sarah Westen, BS [Postbaccalaureate IRTA Fellow],
Office of the Clinical Director National Institute of Mental Health, NIH westens@phhp.ufl.edu W: 352-273-5285

Elizabeth D. Ballard, PhD [Postdoctoral Fellow],
Division of Child and Adolescent Psychiatry The Johns Hopkins University eballar3@jhmi.edu W: 410-955-8596

Stephen J. Teach, MD, MPH [Associate Chief] [Associate Director],
Division of Emergency Medicine

Children's Research Institute, Center for Translational Science Children's National Medical Center STeach@cnmc.org W: 202-476-5134

Suad Kapetanovic, MD [Associate Clinical Director],
Office of the Clinical Director National Institute of Mental Health, NIH suad.kapetanovic@nih.gov W: 301-827-2435

Elizabeth A. Wharff, PhD [Director] [Associate Professor],
Emergency Psychiatry Service Boston Children's Hospital

Department of Psychiatry Harvard Medical School Elizabeth.Wharff@childrens.harvard.edu W: 617-355-7871

Jeffrey A. Bridge, PhD [Principal Investigator],
Center for Innovation in Pediatric Practice Psychiatry and Community Behavioral Health Nationwide Children's Hospital Jeff.Bridge@nationwidechildrens.org W: 614-722-3066

Katherine Ginnis, LICSW, MPH [Associate Director],
Emergency Psychiatry Service Boston Children's Hospital Katherine.Ginnis@childrens.harvard.edu W: 617 355-6000

Maryland Pao, MD [Clinical Director], and

Corresponding Author Lisa M. Horowitz, PhD, MPH Staff Scientist / Pediatric Psychologist Office of the Clinical Director National Institute of Mental Health, NIH horowitzl@mail.nih.gov W: 301-435-6052 .

Disclosures The opinions expressed in the article are the views of the authors and do not necessarily reflect the views of the Department of Health and Human Services, the Centers for Disease Control and Prevention, or the United States government.

Office of the Clinical Director National Institute of Mental Health, NIH paom@mail.nih.gov W: 301-435-5770

Lisa M. Horowitz, PhD, MPH [Staff Scientist / Pediatric Psychologist]
Office of the Clinical Director National Institute of Mental Health, NIH horowitzl@mail.nih.gov W: 301-435-6052

Abstract

Emergency departments (EDs) are important venues for detecting youth at risk for suicide. Children and adolescents who present to the ED and report a recent life stressor, such as stressors related to interpersonal relationships, may be at elevated risk for suicide. Utilizing data from three large, urban pediatric EDs, we examined the relationship between reported recent life stressors and suicide risk, as measured by the Suicidal Ideation Questionnaire. Overall, youth who reported a recent life stressor were at elevated risk of suicide [adjOR = 5.43 (95% CI, 3.18-9.26)]. Importantly, however, this finding was tempered by the fact that 20% of youth who screened positive for suicide risk did not report a stressor. Thus, while the knowledge of stressors may provide useful supplementary information to a suicide risk assessment, the presence or absence of a reported stressor is not sufficient to determine one's risk of suicide. ED clinicians are advised to include direct questions about suicidal thoughts and behaviors.

Keywords

recent life stressor; suicide risk; youth; emergency department

In 2010, suicide was the second leading cause of death for youth age 10-24 years in the United States, accounting for almost 5,000 deaths.(1) One study revealed that approximately 40% of individuals 16 years and older who died by suicide presented to an emergency department (ED) within one year of their death.(2) Thus, the ED is an important venue to capture young patients at risk for suicide.(3-6) This is a challenging task, given time constraints in the ED and insufficient mental health training for nonpsychiatric ED clinicians.(7-8) Nonetheless, improving detection of suicide risk in pediatric patients presenting to the ED is a national priority. (9-11)

Knowledge of risk factors for suicide can help guide a clinician's assessment of who is at risk for harming themselves. Among the most potent risk factors for suicide in youth are a history of past suicide attempts and mental illness.(12-13) However, children and adolescents without a history of mental illness also die by suicide, underscoring the importance of moving beyond psychiatric risk factors alone in determining who is at risk for suicidal behavior. Recent life stressors that affect mood and behavior, such as family instability or peer victimization, may also confer increased risk of suicide in youth.(14-15) While stressors are a normal developmental challenge for children and adolescents, sometimes these stressors may become so overwhelming that they can precipitate suicidal thoughts and behaviors.(16)

The purpose of this study is to examine reported recent life stressors and their association with screening positive for suicide risk in a sample of pediatric ED patients who presented with either medical/surgical or psychiatric chief complaints. In addition, we will describe a qualitative analysis of recent life stressors reported by pediatric ED patients.

METHODS

Participants

Data for the current study were collected as part of a larger multisite suicide risk screening instrument development study.(3) Inclusion criteria were patient age 10 to 21 years, and presentation to the ED with either medical/surgical or psychiatric chief complaints. Exclusion criteria were: 1) triage level one (for medical/surgical patients), suggesting that the patient was not medically stable enough to be approached; 2) parent/guardian was not present for patients under 18 years of age; 3) developmental disability or cognitive impairment that limited the patient's ability to comprehend questions and/or communicate their answers; and 4) non-English speaking. This study was approved by the National Institutes of Health (NIH) Combined Neuroscience Institutional Review Board (IRB) and the IRBs of Nationwide Children's Hospital, Children's National Medical Center, and Boston Children's Hospital.

Procedures

During designated data collection weeks (9/10/2010-1/5/2011), research assistants approached a convenience sample of pediatric ED patients for potential enrollment in a suicide risk screening instrument development study. This occurred after initial triage assessment procedures and while waiting to be seen by a clinician. Participants ages 18 years and older gave written informed consent. Participants under the age of 18 years gave written assent to participate and written informed consent was obtained from their parents or legal guardians. Patients were asked a series of questions about suicidal thoughts and behaviors, history of medical or psychiatric illness, and other clinical and socio-demographic variables. Interviews were conducted in patient examination rooms without the patient's parent/guardian present; participants were told that if the data collectors had any concerns about safety, clinicians and parents would be notified. Full procedures of the multisite study are described elsewhere.(3)

Measures

Recent life stressors—A single item from the Risk of Suicide Questionnaire (RSQ),(8) a 4-item instrument used to screen psychiatric patients in the ED for suicide risk, inquired about recent life stressors: "Has something very stressful happened to you in the past few weeks?" Patients who responded "yes" were asked to describe the stressor(s) in their own words. Responses were recorded in written form, verbatim.

Suicide risk assessment—Suicide risk was measured using the Suicidal Ideation Questionnaire (SIQ), a self-report measure of the severity of suicidal ideation in adolescents. (17).The SIQ consists of 30 items, and the SIQ-JR (used for participants 14 years and younger) consists of 15 items. Participants rank items on a 7-point scale according to the frequency with which a thought occurs, from "Never" to "Almost Every Day." Clinically significant suicidal ideation is considered to be a score of 41 or greater on the SIQ and 31 or greater on the SIQ-JR. Additionally, 8 critical items (6 on the SIQ-JR) directly assess serious self-destructive behavior; an endorsement of 3 or more of these items (2 or more on the SIQ-JR) constitutes a clinically significant level of suicidal ideation, irrespective of the total score. The SIQ has strong psychometric properties, with high reliability (SIQ: $r = 0.97$; SIQ-JR $r = 0.94$) and validity. Of note, the SIQ does not contain a question assessing recent life stressors.

Statistical Methods

Univariate and multivariable tests were employed. Multivariate logistic regression was used to determine the adjusted odds of risk of suicide after adjusting for age, gender, race/ethnicity, and insurance status (as a proxy for socioeconomic status). We made an *a priori* decision to adjust for demographic variables in our model, due to previously reported demographic differences in suicide risk.(12) Due to differences in the clinical management of patients presenting with psychiatric versus medical/surgical chief complaints, separate regression models were run for the overall group, psychiatric patients, and medical/surgical patients.

Qualitative Analysis

Qualitative responses to the RSQ stressor question were recorded and entered into Microsoft Excel. Two investigators used open coding to identify themes that emerged, and codes were refined using a constant comparison method. Inter-rater agreement was 90%. All discrepancies were resolved by discussion and consensus with a larger study team, comprised of a child/adolescent psychiatrist, pediatric clinical psychologist, social worker, and two research assistants.

RESULTS

Participants

Out of 1170 patients approached during data collection weeks, 803 (68.6%) were eligible for participation. Overall, 524 (344 medical/surgical, 180 psychiatric) patients agreed to enroll in the study and completed the screening protocol. There were no significant differences in demographic variables between those who did and did not participate in this study. Participants were 56.9% female; 50.4% white, 29.6% black, and 9.0% Hispanic/Latino; and 53.2% privately insured (see Table 1).

Self-Reported Recent Life Stressors

Among the 524 study participants, 252 (48.1%; 127 medical/surgical, 125 psychiatric) participants reported a recent life stressor; several participants reported more than one stressor. The most common recent stressors reported by patients were concerns about interpersonal relationships, school and extracurricular activities, health of oneself, health of a family member or friend, violence and bullying, and death of a loved one. The 13 recent life stressors reported by all participants, stratified by patient type and SIQ result, are presented in Table 2. Similar stressors were reported by participants across groups (SIQ+ vs. SIQ-, medical/surgical patients vs. psychiatric patients).

Relationship between Self-Reported Recent Life Stressors and Suicide Risk

Among the 524 study participants, 98 (18.7%) screened positive for suicide risk on the SIQ. Of these 98 participants, the majority (n = 84; 86%) were patients with a psychiatric chief complaint, and 78/98 (79.6%) reported a recent life stressor. Of note, twenty (20.4%) participants who screened positive on the SIQ reported no recent stressor (17 psychiatric, 3 medical/surgical). Adjusted odds ratios of reporting a stressor predicting screening positive for risk of suicide are presented in Table 3. Among all patients, the odds of screening positive for risk of suicide were over five times greater among those who reported a recent life stressor (adjusted odds ratio [adjOR] = 5.43; 95% confidence interval [CI] = 3.18-9.26)]; in this model, the odds of screening positive for suicide risk were lower in males than in females (adjOR = 0.47; 95% CI = 0.28-0.78). Among patients presenting with a psychiatric chief complaint, the odds of screening positive for risk of suicide were nearly three times greater among those who reported a recent life stressor (OR = 2.76; 95% CI, 1.35-5.64); in

this model, the odds of screening positive for suicide risk were also lower in males (adjOR = 0.35; 95% CI = 0.18-0.67). Finally, among patients presenting with a medical/surgical chief complaint, the odds of screening positive for risk were over five times greater among those who reported a recent life stressor [OR = 5.57; 95% CI = 1.48-21.00); demographic variables were not associated with increased odds of screening positive for risk of suicide in this model.

DISCUSSION

In a multisite sample of pediatric ED patients, about half of the participants reported a recent life stressor. Participants who reported a recent life stressor were significantly more likely to screen positive for elevated suicide risk, as measured by the SIQ.

The types of stressors reported by youth who screened positive for suicide risk were similar to the stressors reported by youth who did not screen positive. In both groups, developmentally appropriate stressors for children and adolescents were reported, including concerns about interpersonal relationships and school and extracurricular activities. Given the clinical population of children and adolescents, it was not surprising that health was also a common recent stressor reported. Further, stressors reported by patients presenting to the ED with medical/surgical versus psychiatric chief complaints were similar. Taken together, these findings suggest the recent life stressors reported by the youth in this sample are consistent amongst different subpopulations of pediatric ED patients, regardless of whether the visit was for psychiatric or medical concerns.

Of note, 20% of youth screened positive for suicide risk but did not report a stressor. There are several clinical implications to this finding. Some youth who are at risk for suicide may not identify a stressor as a "stressor." Furthermore, children and adolescents may not think of stressors unless probed. For example, one 13-year-old female participant who presented to the ED following a suicide attempt and screened positive for suicide risk responded "yes" to the screening question, "In the past few weeks, have you been bullied or picked on so much that you felt like you couldn't stand it anymore?" Although bullying was identified as a stressor by some patients who also screened positive for suicide risk, this 13-year-old girl did not report it as a "recent life stressor." Consequently, a general, open-ended question about stress may have limited utility; instead, clinicians may need to specifically probe for different types of stressful events, such as bullying or relationship difficulties, and educate patients about the meaning of the words "stressor" as well as most common types of stressors.

The main finding of this study—that the presence of self-reported recent life stressors was significantly associated with elevated risk of screening positive for suicide risk among youth in the ED—was tempered by the fact that the question about stressors missed some participants who screened positive on the SIQ. This suggests that the presence or absence of self-reported stressors is not sufficient in determining risk for suicide and should be considered in combination with other risk factors previously reported as significant predicators of suicidal ideation among adolescents, specifically a history of mental illness and past attempts. This finding also speaks to the importance of asking youth directly about suicidal thoughts and behaviors, rather than relying on indirect screening questions alone.

In 2012, Horowitz and colleagues developed a new screening instrument to include patients who present to the pediatric ED with medical/surgical chief complaints. The new 4-item tool, the Ask Suicide-Screening Questions (ASQ), was found to have strong psychometric properties, including high sensitivity and negative predictive value, in relation to the "gold standard" SIQ.(3) Interestingly, the stressor question from the RSQ was included as a

candidate item for the new tool, but it was not included in the final instrument due to poor agreement with the SIQ. When the stressor question was examined, it had only moderately high sensitivity and, as expected, very low specificity, meaning that there were a large numbers of false positives. The four questions that were included in the ASQ yielded a high sensitivity, specificity, and negative predictive value when compared with the SIQ, and included specific and direct probes about suicidal thoughts and behaviors. Screening youth for suicide risk with validated instruments that utilize items that directly assess suicidal thoughts and behaviors, such as the ASQ, will aid non-psychiatric clinicians in detecting suicide risk, while not overburdening the ED with false positive findings, or even worse, missing youth who require further mental health evaluation

There are several noteworthy limitations to this study. First, the presence or absence of recent life stressors was not systematically evaluated; the question used to probe about recent life stressors was an item on a suicide risk screening instrument, the RSQ, but had not been validated as a true measure of stress. Therefore, this question most likely measured a patient's intention to report a stressor. Second, the three EDs were in primarily urban settings, potentially limiting generalizability. Third, factors such as resiliency that could buffer youth against the negative sequelae of stress were not examined. Nonetheless, as noted, identifying youth at risk for suicide is a critical public health responsibility; this study adds to the literature by examining recent life stressors and suicide risk in a cohort of pediatric ED patients.

CONCLUSIONS

Pediatric ED patients who report a recent life stressor may be at increased risk of suicide. However, in this sample, 20% of patients who were deemed at risk did not report a stressor, suggesting that the presence or absence of a stressor alone should not be used as a determinant for risk of suicide. Inquiring about recent stressors may be an important adjunct to create a comprehensive profile of these at-risk youth, arming the clinician with crucial information to guide targeted interventions.

Acknowledgments

Funding /Support The research in this article was supported by the Intramural Research Program of the National Institutes of Health and the National Institute of Mental Health. Dr. Bridge was supported by institutional research funds from The Research Institute at Nationwide Children's Hospital, CDC grant R01 CE-002129, and NIMH grants K01 MH-69948 and R01 MH-93552.

REFERENCES

1. Centers for Disease Control and Prevention National Center for Injury Prevention and Control. [Accessed 12-1-2012] Web-based injury statistics query and reporting system (WISQARS). Available at: http://www.cdc.gov/injury/wisqars/index.html
2. Gairin I, House A, Owens D. Attendance at the accident and emergency department in the year before suicide: retrospective study. BMJ. 2003; 183:28–33.
3. Horowitz LM, Bridge JA, Teach SJ, et al. Ask suicide-screening questions (ASQ): a brief instrument for the pediatric emergency department. Arch Pediatr Adolesc Med. 2012 doi:10.1001/archpediatrics.2010.1276.
4. Horowitz LM, Ballard E, Pao M. Suicide screening in schools, primary care and emergency departments. Curr Opin Pediatr. 2009; 21:620–7. [PubMed: 19617829]
5. King CA, O'Mara RM, Hayward CN, et al. Adolescent suicide risk screening in the emergency department. Acad Emerg Med. 2009; 16:1234–41. [PubMed: 19845554]
6. Wintersteen MB, Diamond GS, Fein JA. Screening for suicide risk in the pediatric emergency and acute care setting. Curr Opin Pediatr. 2007; 19:398–404. [PubMed: 17630602]

7. Horowitz L, Ballard E, Teach SJ, et al. Feasibility of screening patients with nonpsychiatric complaints for suicide risk in a pediatric emergency department: a good time to talk? Pediatr Emerg Care. 2010; 26:787–92. [PubMed: 20944511]
8. Horowitz LM, Wang PS, Koocher GP, et al. Detecting suicide risk in a pediatric emergency department: development of a brief screening tool. Pediatrics. 2001; 107:1133–7. [PubMed: 11331698]
9. U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention. 2012 national strategy for suicide prevention: goals and objectives for action. HHS; Washington, DC: Sep. 2012
10. Dolan MA, Fein JA, American Academy of Pediatrics Committee on Pediatric Emergency Medicine. Pediatric and adolescent mental health emergencies in the emergency medical services system. Pediatrics. 2011; 127:e1356–66. [PubMed: 21518712]
11. Knesper, DJ.; American Association of Suicidology, & Suicide Prevention Resource Center. Continuity of care for suicide prevention and research: suicide attempts and suicide deaths subsequent to discharge from the emergency department or psychiatry inpatient unit. Education Development Center, Inc; Newton, MA: 2010.
12. Bridge JA, Goldstein TR, Brent DA. Adolescent suicide and suicidal behavior. J Child Psychol Psychiatr. 2006; 47:372–94.
13. Brent DA, Baugher M, Bridge J, et al. Age- and sex-related risk factors for adolescent suicide. J Am Acad Child Adolesc Psychiatr. 1999; 38:1497–1505.
14. Beautrais AL. Suicide and serious suicide attempts in youth: a multiple-group comparison study. Am J Psychiatry. 2003; 160:1093–9. [PubMed: 12777267]
15. Hagedorn J, Omar H. Retrospective analysis of youth evaluated for suicide attempt or suicidal ideation in an emergency room setting. Int J Adolesc Med Health. 2002; 14:55–60. [PubMed: 12467207]
16. Adams DM, Overholser JC, Spirito A. Stressful life events associated with adolescent suicide attempts. Can J Psychiatr. 1994; 39:43–8.
17. Reynolds, W. Suicidal ideation questionnaire. Psychological Assessment Resource; Odessa, FL: 1988.

Table 1

Participant demographic characteristics.

	Total (N=524)	Medical/Surgical (N=344)	Psychiatric (N=180)
	Values are n (%) unless otherwise noted		
Age in years Mean (SD)	15.2 (2.6)	15.6 (2.6)	14.4 (2.3)
Gender Male	226 (43.1)	151 (43.9)	75 (41.7)
Female	298 (56.9)	193 (56.1)	105 (58.3)
Race/ethnicity White	264 (50.4)	162 (47.1)	102 (56.7)
Black	155 (29.6)	103 (29.9)	52 (28.9)
Hispanic/Latino	47 (9.0)	36 (10.5)	11 (6.1)
Asian	12 (2.3)	9 (2.6)	3 (1.7)
Other/unknown	46 (8.8)	34 (9.9)	12 (6.7)
Insurance Private	279 (53.2)	179 (52.0)	100 (55.6)
Public	196 (37.4)	132 (38.4)	64 (35.6)
Public & Private	16 (3.1)	9 (2.6)	7 (3.9)
None	33 (6.3)	24 (7.0)	9 (5.0)
Site CNMC	156 (29.8)	106 (30.8)	50 (27.8)
BCH	199 (38.0)	117 (34.0)	82 (45.6)
NCH	169 (32.2)	121 (35.2)	48 (26.7)

Note. Abbreviations: SD, standard deviation; CNMC, Children's National Medical Center; BCH, Boston Children's Hospital; NCH, Nationwide Children's Hospital.

Table 2

Self-reported recent life stressors identified through qualitative analysis.

Theme	Overall Sample Endorsing a Stressor (n = 252)	SIQ + (n = 78)	SIQ− (n = 174)	Psych (n = 127)	Med/Surg (n = 125)
	Values are %(n)				
Interpersonal Relationships	35 (88)	45 (35)	31 (53)	37 (47)	33 (41)
School & Extracurricular Activities	28 (70)	24 (19)	29 (51)	28 (35)	28 (35)
Health-Related: Self	21 (53)	12 (9)	25 (44)	16 (20)	26 (33)
Health-Related: Family/Friend	8 (21)	9 (7)	8 (14)	8 (10)	9 (11)
Violence & Bullying	7 (17)	9 (7)	6 (10)	7 (9)	6 (8)
Death of Loved One	7 (17)	4 (3)	8 (14)	6 (7)	8 (10)
Substance Use	5 (12)	9 (7)	3 (5)	7 (9)	2 (3)
Housing Unstable	4 (10)	6 (5)	3 (5)	5 (6)	3 (4)
Unspecified	4 (10)	6 (5)	3 (5)	6 (7)	2 (3)
Legal	3 (7)	5 (4)	2 (3)	5 (6)	1 (1)
Refusal to Discuss	2 (6)	4 (3)	2 (3)	2 (3)	2 (3)
Financial	1 (2)	0 (0)	1 (2)	0 (0)	2 (2)
Sexuality	1 (2)	3 (2)	0 (0)	2 (2)	0 (0)
Total *	100 (315)	100 (106)	100 (209)	100 (161)	100 (154)

* Note. Total n value exceeds n = 252 patient reports due to coding more than one theme in a single response

Table 3

Adjusted odds ratios (with 95% confidence intervals) examining stressor, age, gender, race/ethnicity, and insurance status as a predictor of screening positive for suicide risk.

Predictors	Entire Group (N = 524)	Psychiatric (n = 180)	Medical/Surgical (n = 344)
	Values are adjOR (95% CI)		
Stressor	5.43 (3.18-9.26)	2.76 (1.35-5.64)	5.57 (1.48-21.00)
Age	0.94 (0.86-1.03)	1.11 (0.97-1.28)	1.18 (0.92-1.51)
Gender	0.47 (0.28-0.78)	0.35 (0.18-0.67)	0.46 (0.12-1.79)
Race/Ethnicity	1.07 (0.87-1.30)	1.08 (0.78-1.48)	1.29 (0.85-1.95)
Insurance	0.99 (0.70-1.41)	0.98 (0.60-1.61)	0.67 (0.31-1.45)